

CONTRIBUTION  
TO THE  
ICHTHYOLOGY OF AUSTRALIA.

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No. VII.—FISHES OF NEW CALEDONIA.

The animals of New Caledonia are generally very distinct from those of Australia, but I thought it might be useful to give here the little information I have been able to obtain on the fishes of that region, as it is probable that under particular circumstances, most of them may be driven on the opposite coast of Queensland. All my knowledge of the ichthyology of this island is due to a collection that Mr. Adet, the French merchant of this city, was kind enough to make for me during a sojourn of a few months at Noumea.

CHRYSOPHRYS NOVÆ CALEDONIÆ.

It is with some doubt that I separate under that name, the specimen I have under my eyes, from the *Sp. Berda*, of Forskal and Ruppel, which has only, till this time, been found in the Red Sea. Dr. Gunther has proved that it is by mistake that Cuvier and Valenciennes included this sort with the *Sparus Hasta* of Bloch, which is found all over the Indian Sea.

The figure given by Ruppel applies perfectly with my sort, with the exception of the opercular spine, which is not marked on it, and the anal, which is shorter; the number of the anal rays seems also different.

The height is contained a little over twice and a quarter in the length to the central end of the caudal, or rather more than twice without that fin; the head is three times and two-thirds in the last distance; the eye is three times and two-thirds in the length of the head; the snout has once and a

half the length of the orbit ; the upper profile is very, and almost regularly, convex ; the cheeks have five series of scales, and the operculum the same number ; this last has a well-marked point ; the lateral line runs over forty-seven scales, and is not visible on the very small ones of the end of the tail ; the transverse line has eighteen scales ; the lateral line passing over the sixth.

The dorsal has eleven spines and as many rays ; the spines are thick and inflated on their back edge ; the first is short ; the second about twice as long ; the third a little longer and the fourth the longest of all, and equal to one-half the length of the head ; the caudal is rather deeply forked, of seventeen long rays ; the anal has three spines and eight rays ; the first spine is very short, the second four times as long, and considerably longer than the fourth dorsal ; the third is very strong, almost straight, about one-fourth shorter than the second and not quite as long as the rays ; it is contained once and a half in the length of the head ; the ventrals are large and extend to the snout ; the pectorals are long and have nearly once and one-third the length of the head, they are pointed and formed of sixteen rays.

The total length is nine inches, and the colour uniform silvery, with the outer part of the dorsal, caudal, anal, and ventrals more obscure.

#### DIACOPUS ADETIL

The genus *Diacopus* of Cuvier is easily recognised amongst the *Percidæ*, by the deep notch of the lower part of the præoperculum, which receives a strong tubercle of the interoperculum ; these fish have the general appearance of *Sparidæ*. The name of the genus has been changed by Dr. Gunther into *Genyoroge*, employed by Dr. Cantor for one of its sorts, but all other authors have adopted the name given by the great French naturalist.

The sort I here describe appears very distinct from the three or four others which have eleven spines at the anal, and which are all adorned with bands or stripes, which this does not possess.

Height of body three times and one-third in total length of the fish, or three times without the caudal ; head twice and six-eighths in the same dimension ; eye four times and a half in the length of the head.

The upper profile is very convex, with the head attenuated ; the lower profile almost straight ; the teeth are in small number, far apart one from the other ; there is on the upper jaw, and in front a rather strong canine, on each side ; the lower jaw is longer than the upper one ; its teeth are larger behind than in front ; the head is generally naked, but there are four series of scales on the sides of the cheeks, and more on their lower part ; the præoperculum is finely serrated backwards, but not at its lower edge ; the notch is considerable ; the operculum terminates by an angular flat spine ; it has eight series of scales on its greatest breadth.

The body is compressed ; the lateral line runs regularly to the base of the caudal ; it extends over about sixty-six transverse lines of scales, without counting a few more very indistinct ones at the base of the caudal ; the transverse series number about thirty-four ; the lateral line passing over the tenth.

The dorsal fin is formed of eleven spines, of which the first is the shortest, the second nearly twice as long, the fourth, fifth, and sixth the longest, and about equal ; the others grow shorter as they go backwards ; the soft dorsal is formed of fifteen rays ; the caudal is strongly emarginated, of seventeen rays, which, except the central ones, are covered with minute scales. Anal with three spines ; the first short ; the second twice and a-half as long ; the third is nearly as long as the second, but much more slender ; the soft part is formed of eight rays, and this part, as is also the case with the similar portion of the dorsal, has its base covered with minute scales ; the pectorals are rather large, with their spine long and slender ; the pectorals extends much further back than the ventrals ; they are very pointed and formed of seventeen rays.

The general colour is of a beautiful red pink, with the head of a lighter tinge ; a sulphur yellow stripe runs from the anterior margin of the eye towards the mouth ; the same

colour extends round the orbit ; a rather broad longitudinal stripe extends from the operculum to the base of the caudal, below the lateral line it is of a beautiful yellow ; on the sides and on a part of the back the scales have a black margin, which gives an obscure colour to these parts ; the fins appear to have been of a beautiful scarlet colour.

Length of my largest specimen thirteen inches ; the black colour of the margin of some of the body scales seems subject to considerable variation in extent and place. In one specimen there are two canines on one side of the upper jaw, and only one on the other.

This beautiful fish seems to be common.

SILLAGO CILIATA?

Sillago Ciliata, *Cuv. and Val.*, vol. iii., p. 415 ; *Règne An. Illustré, Poissons*, pl. 13.

Height of the body five and two-thirds in the total length (to the end of the centre of the caudal) ; head three and a-half times in the same ; eye five times in the head ; the space between the eyes nearly twice in the snout ; teeth numerous, viliform, extending on the palatines ; snout, up to the nostril, forming one-half of the space to the end of the præoperculum ; the edge of this is crenulated ; the scales of the body number sixty-three on the longitudinal line from the operculum, and sixteen on the transverse one ; the lateral line running over the sixth ; these scales are very finely ciliated at their edge ; the first dorsal has nine spines, the first of which is stronger, but rather shorter than the following ; the second dorsal is formed of one spine and seventeen rays ; this fin is in great part covered by minute scales ; the caudal is strongly emarginated, of sixteen long rays and several shorter ones on each side ; the rays are scaly in the two first thirds of their length ; the anal is formed of two spines and sixteen rays ; it bears no scales ; the ventrals have a rather long and slender spine and five rays, the first of which is rather filamentous ; the pectorals are rather longer than the space from the end of the snout to the anterior edge of the orbit ; they are formed of seventeen rays.

The colour is white and silvery, with the upper parts darker and rather purple; there is no longitudinal streak on the sides; the fins are yellow, edged with black, with the exception of the anal and ventrals, which are entirely of a bright sulphur colour; the membranes of the second dorsal have oblique obscure streaks.

Length of my largest specimens from eleven to twelve inches.

It is only with some doubt that I consider this fish to belong to *S. Ciliata*, as it has no appearance of a longitudinal streak. If on comparison it was found different, I would propose for it the name of *Insularis*.

EQUULA CABALLA.

Centrogaster Equula, *Lin. Gm.*, 1337.

Cæsiø Equulus, *Lacép.* iii., 88, 90.

Equula Caballa, *Cuv. and Val.* x., p. 73.

Two specimens, eight inches long; silvery, with the back of a light blue; fins yellow; the axle of the pectorals obscure.

ECHENEIS NAUCRATES.

Echeneis Naucrates, *Lin. Sys., Nat.* i., p. 446.

The disk has twenty-five laminæ, and is contained four times and a-half in the total length; dorsal with thirty-nine rays, and anal with thirty-eight; caudal rather strongly bilobed; the lower lobe much larger than the upper one; pectorals nearly as long as the head

Length twenty-three inches and a-half.

TEUTHYS CONCATENATUS.

Amphacanthus Concatenatus, *Cuv. and Val.*, vol. x., p. 127.

Height of body twice and one-third to the central edge of the caudal, or a little over twice in the length without this fin; head four times in the first of these measurements; eye three times and a quarter in the length of the head, and once and two-thirds in the distance from the end of the caudal to

the anterior edge of the orbit. Upper profile very convex, falling over the head and convex again on this part; the cheeks covered with small scales; the operculum with transverse and rather radiate striæ; the caudal strongly emarginated; pectorals not attaining as far backwards as the ventrals, of seventeen rays.

The general colour is of a light blue; on the head there are, on each side, several broad, oblique, yellow stripes; the body is entirely covered with similar vermicular ones; they are broader than the ground spaces left between them; on the back they are more irregular, and have generally an oblique direction; on the sides they are flexuous and longitudinal; on the lower parts of the body they are more apart, and form very interrupted lines or rather longitudinal series of oblong blotches. All these lines have a darker border; the spinous part of the dorsal and of the anal and also the ventrals are irregularly marbled with yellow, but the soft parts of these fins have transverse series of small yellow brown blotches; the pectorals are entirely of a light greyish yellow.

## TEUTHYS PUNCTATUS.

*Amphacanthus Punctatus*, *Bloch. Sch.*, p. 210, 6.

*Harpurus Inermis*, *Forster*, MS. iv., 3.

This sort appears to come very near to *Amphacanthus Sutor* of Cuvier and Valenciennes; in fact, the few words that Dr. Gunther says on this sort in his Catalogue, applies entirely to it: "The height of the body is more than one-third of the total length, brown, minutely dotted all over with whitish;" but in the original work of the French naturalists I find (vol. x., p. 148) that the head is contained near six times in the total length, and this cannot agree with the present species, but seems to agree with the *Punctatus* of Bloch, which was brought by Forster from New Caledonia.

The height is contained twice and a-half in the length without the caudal fin, or twice and three-fourths with it; the head is four times in the length to the base of the caudal;

the eye a little over twice and a-half in the head ; the form is oval, the two profiles being almost equally convex.

The dorsal is, as usual in the genus, formed of thirteen spines, without the one directed forwards, and ten rays ; the caudal is very strongly emarginated, of sixteen long rays and several shorter on each side ; the anal of seven spines and nine rays ; the ventrals have two spines and two soft rays ; the first and last being spines, and the three central ones only rays. In one specimen, one of the pectorals has three spines and only two rays ; the pectorals are twice as long as the orbit and have fifteen rays.

The colour is of a silvery grey, with the lower parts almost white ; the head and body are entirely covered with round white spots (which may have been blue on the living specimens) ; they are very numerous, and on an average the distance from centre to centre is equal to one-half the one from the posterior edge of the eye to the one of the præoperculum ; traces of these spots are also seen on the fins, which are of the general colour ; the rays are marbled with dark grey and white.

Length six inches and a-half.

Very common.

Bloch's (Schneid.) description agrees well with this sort, with the exception of the words *Cauda Carinata*, but this appearance may have been due to the mode of preserving the specimen.

Dr. Gunther thinks that Forster's fish is the same as *Nebulosa* of Quoy and Gaimard (Uranie), but this cannot be the case if it is, as I believe, the sort I here describe.

#### MUGIL NEOCALEDONICUS.

Height four and a-half times in the total length, or four times in the same without the caudal ; head equal to the height ; eye five times in the length of the head ; space between the eyes contained twice in the length of the head.

Head very broad, rounded in front ; eye without an adipose membrane ; lips very thick ; the upper one as broad as two-

thirds the diameter of the eye ; the longitudinal line running over about forty-four scales (the last being difficult to count) and the transverse one fifteen ; these scales are finely striated and ciliated on the edge ; they have a longitudinal ridge which does not extend to the end ; these ridges, by their union, form longitudinal lines on the body. The first dorsal is formed of four spines, it is inserted at an equal distance to the end of the snout and to the lateral base of the caudal. The spine is as long as the space between the posterior margin of the eye and the end of the operculum ; the second dorsal has one spine and eight rays ; the space between the base of the two dorsals is rather more considerable than the length of the head ; the caudal is very strongly bifurcated ; the lobes being very pointed ; it has fourteen long rays and several short ones on each side ; anal inserted rather behind the second dorsal, of three spines and nine rays ; the ventrals are rather large ; the pectorals not quite as long as the head, and extend to near the vertical from the origin of the first dorsal, of sixteen rays.

The colour is white, silvery, with the upper parts grey ; the caudal is bordered laterally with slate colour ; the dorsal is grey ; the anal and ventrals white ; the pectorals yellow, with the base of their external edge dark.

Length sixteen inches.

This sort is nearly allied to *M. Waigiensis*, but the thick lip, the deeply bifurcated caudal, and the colour of the pectorals distinguish it at once.

The anterior part of the head is without scales ; there are twenty-one of these before the first dorsal.

#### GERRES GIGAS.

Gerres Gigas, *Gunth. Catal.*, vol. iv., p. 263.

I think there is very little doubt that this is the *Gigas* of Dr. Gunther, his specimens were from the Tonga Islands, but as mine shows some slight differences, I will give a succinct description of it.

Height of the body contained twice and a-half in the length without the caudal, or a little over three times to the end of



this fin ; head three times and a-half in the first of these dimensions ; eye three times and eight-tenths in the length of the head.

The snout is considerably produced, and is, up to the nostril, a little longer than the diameter of the eye ; the maxillary bone extends further than the anterior edge of the eye ; the upper front part of the head is naked ; the cheeks have three series of scales ; the operculum is slightly bilobed behind, and has five series of scales ; the highest part of the body is at the insertion of the dorsal ; the scales are rather angulous on their edge, they number about forty-eight on the longitudinal line and nineteen on the transverse one ; the lateral line passes over the seventh.

The dorsal is formed of nine spines and ten rays ; the first spine is very short, the second much longer than all the others, and equal in length to the distance from the anterior edge of the orbit to the end of the operculum ; the caudal is considerably longer than the head, it is very deeply forked, and formed of fifteen long rays with other short ones at the base ; the anal and the dorsal are received in a deep scaly sheath ; it is formed of three spines and eight rays ; the first spine is very short, the second eight times longer, and the third nearly as long as the precedent, but not so thick ; this second spine is more slender than the second of the dorsal, and is less than two-thirds of its length ; the ventrals are rather large and inserted behind the pectorals, they are as long as the head, of sixteen rays ; they are at least as long as one-fourth of the total length to the extremity of the caudal.

The colour is white and silvery ; the upper parts have a bluish tinge ; the dorsal and caudal have an obscure edge.

The total length is over fourteen inches.

#### NEOSUDIS.

Body very elongate ; height eight and a-half times in the total length ; head six times and one-third in the same ; eye four and two-thirds in the head ; body compressed, very elongate, sharp below ; head also compressed ; the lower jaw con-

siderably longer than the upper one; chin salient and rounded; teeth strong, slender, almost straight, apart one from the other; those of the upper jaw much shorter than those of the mandible, with the exception of the two front ones, which are often unequal in length and directed obliquely forwards; the lower teeth are very long, pointed, directed backwards. The opening of the mouth is superior, and the maxillaries extend further than the edge of the eye; eyes covered by a veil; the operculum rounded; upper surface of the head depressed between the eyes, with three longitudinal ridges, the central one abbreviated; body covered with minute scales; dorsal unique inserted very considerably behind the middle of the body, and at about two-thirds of its length; this fin is about two-thirds of the length of the head; it has sixteen rays, the posterior ones and the base of the others are covered with scales, and the fin has an adipose appearance; the caudal is very deeply forked, formed of twenty long rays and of a considerable number of shorter ones on each side; anal inserted a little behind the beginning of the dorsal, and over twice as long as this; it is covered in great part by scales, and the rays are difficult to count, numbering twenty-six to twenty-eight; the anterior rays are considerably longer than the others. Ventrals very small, of about one-fifth the length of the pectorals, placed a little nearer to the base of the pectorals than to that of the anal, and formed of eight stiff rays; the lower ones formed of a sort of broad lamina, which is also the case with the dorsal and anal; pectorals situated near the lower edge of the operculum, of fourteen rays; they are nearly as long as two-thirds of the head.

I can only place this remarkable fish with the *Scopelidæ*, and its dorsal fin, placed on the posterior part of the body, would bring it near *Sudis*.

#### NEOSUDIS VORAX.

Silvery, with the upper parts of a dark slate colour; dorsal, ventrals, and anal, white; caudal rather yellow, bordered with black.

The largest of my specimens is over twenty-four inches in length.

Noumea, New Caledonia.

HEMIRHAMPHUS COMMERSONII.

Hemirhamphus Commersonii, *Cuv. and Val.*, vol. xix., p. 28.

The specimen is seventeen inches long. This sort has been found in the Red Sea, all along the east coast of Africa, and in the Indian Archipelago.

GASTEROTOKEUS BIACULEATUS.

Syngnathus Biaculeatus, *Bloch.*, pl. 121, fig. 1.

————— *Bl. Schn.*, pl. 107.

The absence of a caudal fin, the depressed body, the well developed pectorals and the long dorsal, places this genus very near *Stigmatophora*; its caudal slightly prehensile has caused it to be included in the group of *Hippocampina*, but it is much nearer allied to the *Syngnathidæ*.

The spine of the superciliary margin being bifide, I am not certain that the specimen belongs to the sort figured by Bloch.

The height of the body is contained nearly twice in its breadth; the snout, up to the nostrils, is only a little longer than the remaining portion of the head; it is compressed and has a longitudinal sulcate, which runs rather obliquely from its extremity to the centre of the anterior edge of the orbit; there is a short bifide spine over the orbit directed backwards, and a small bunch of three or four spines arms the posterior edge of the head, which is strongly granulated; the operculum has two longitudinal ridges, which unite in front, the space between them is longitudinally sulcated, but below them the sulcates are radiated. The suborbitor presents several blunt spines; the body becomes gradually very broad towards its centre; its section presents an irregular quadrilateral, narrow on the back and very broad on the sides; the two upper ridges do not extend further than the dorsal, but the lower ones follow on the tail. There are eighteen body rings and

forty-four caudal ones ; these rings are strongly and transversely striated and reticulated ; on the lower surface there are two feeble longitudinal lines, which extend on the base of the tail ; the body portion of this surface has its central part covered with broad, rounded, striated scales. The dorsal begins at the sixteenth body ring, and extends over the eleven following ones ; it has about forty-six rays and the pectorals, twenty-three.

The general colour is of an olive green, with the edges of the body segments rather obscure.

The total length of the specimen is seven and a-half inches.

#### TETRODON GIGANTEUS.

No scutes forming a carapace ; nasal organs very conspicuous ; body broad ; nasal opening single on each side ; body smooth.

Head contained four times in total length ; its breadth eight-tenths of its length ; the upper jaw has on each side of its median suture a longitudinal depression ; the nasal openings have each two short tentacles ; the pectorals are large and have sixteen rays ; the dorsal is in front of the anal and has nine rays ; the anal seven ; the caudal is long, being equal to the breadth of the head, subtruncate, of seven rays. The body is entirely smooth, except below the throat, where it is covered with short tubercules.

The general colour is of a dark green, with the lower part white ; it is entirely covered with round white blotches ; these are very numerous, and smaller on the back part of the fish than on the head ; they cover the caudal ; on the sides of the belly and the lower part of the head, the green colour extends in form of oblique transverse streaks ; the fins are of a yellowish yellow ; the pectorals and anal have a few white spots on their base.

Length of the specimen, twenty-one inches.

#### RAYA TRIGONOIDES.

Disc rhombic, smooth, broader than long ; the anterior angle very obtuse, rounded ; tail once and a-half as long as

the body, tapering and very slender at its end ; no caudal ; dorsal small, inserted a little nearer to the end of the tail than to its base ; anal at least four times as long as the dorsal ; a feeble longitudinal fold on each side of the tail, and a still feebler one on its upper part in front of the dorsal ; ventrals entire, not marginated nor divided. The body is entirely smooth, and there is no spines on any part of the fish.

Entirely of a light brown lilac colour, with a few faint white oscillated spots on the disc, and a larger number of smaller black ones dispersed in a most irregular way ; posterior part of the tail annulated, black and orange ; lower side of the body entirely of a light cream colour.

Length of the body six inches., total length fourteen inches.

The anterior profile is something like the one of *Raya Asterias*, but still more blunt and rounded. The entire ventrals will not allow this sort to remain in the genus *Raya*, and brings it in with the *Trygon* ; but the absence of a caudal spine does not allow it to be placed with this. If these views are adopted I propose calling this new genus *Neotrygon*. It would come, in the system, after *Sympterygia*.

